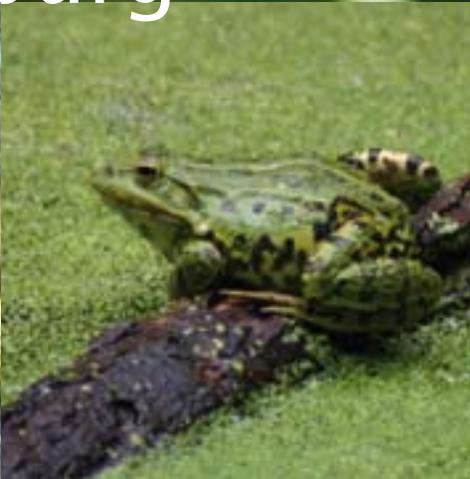


gemeente Tilburg



BIO diversity in Tilburg





Hard work and experimenting

When Tilburg (200,000 inhabitants) was planning a new residential area for 45,000 residents in the nineties, it decided not to use part of its valuable building land for housing. A strip of land averaging a width of 150 metres along the Donge river was saved as a nature conservation area.

The result is that Tilburg has a scenic area running right through the city with a wide variety of plant and animal life. Recreation, biodiversity and ecology are linked together in this green strip, despite considerable opposition; the city council was able to stick to its guns.

We liked experimenting at that time, and we still do. Since then, in consultation with many partners, we have developed the Green Template. This project, unique in the Netherlands, defines an area around the city that accentuates the green geographical location of Tilburg. An area in which development can only take place after careful deliberation and in close consultation with the partners. The green environment of Tilburg is given its own place in this way, so that biodiversity can be safeguarded and facilitated.

I am proud that we were the first city in the world to sign Countdown 2010, here in Tilburg in 2005 during the ICLEI Congress that was held in our city.

Tilburg has had a leading position as most sustainable city in the Netherlands (since 2005) and wants to maintain that position. The Dutch jury of the Entente Florale recognizes the high quality of the planning, approach and management of nature in and around Tilburg, which means that the city is one of the candidates for the first prize in 2007.

The signs are good, but it is hard work to maintain that leading position. Things are not simply a matter of course in this respect in Tilburg. The city does not have a large natural heritage and a great deal of green areas have disappeared to make way for new housing estates. That is why we are so pleased with the recognition of our efforts through the attention that we receive both nationally and internationally.

It will cost a great deal of extra effort to maintain our leading position in the Netherlands. Other cities are not standing still. And that is a good thing, because sustainable development requires an effort by everyone. Tilburg is extremely glad that it is a member of the Local Action for Biodiversity (LAB), in co-operation with ICLEI. Working at biodiversity can only be successful if we co-operate at local, regional, national and international levels.

*Marieke Moorman
Alderman for the environment*





Contents

Tilburg intro

Management

The Netherlands and biodiversity

Province Noord Brabant and biodiversity

Tilburg and biodiversity

Why biodiversity

Green Template

Biodiversity map

- **A: De Brand**
- **B: Piushaven**
- **C: De Kaaistoep**
- **D: Dongevallei**
- **E: Huis ter Heide**

Biodiversity Management



EUROPE



TILBURG



THE NETHERLANDS



NOORD-BRABANT

Tilburg intro

People from Tilburg are known for their down-to-earth attitude. The city's roots go back to the days of the textile industry which flourished here during the last century. The thousands of working-class families from the textile days have given Tilburg a get-on-with-it mentality.

Tilburg is the home of a range of organisations such as the European Centre for Nature Conservation and the Brabant Nature Museum. The city has been voted "most sustainable city of The Netherlands" for three years in a row (2005, 2006, 2007).

Key figures Tilburg (2006)

- Tilburg is the sixth largest city in the Netherlands
- Surface area 11,883 hectares (including 145 inland waterways)
- Trees 96,000 (and approximately 100,000 in private gardens)
- Nature area 1,687 hectares
- Forest 550 hectares
- Public green 1,300 hectares
- Parks 23
- Population 200,000
- Number of businesses approximately 7,400



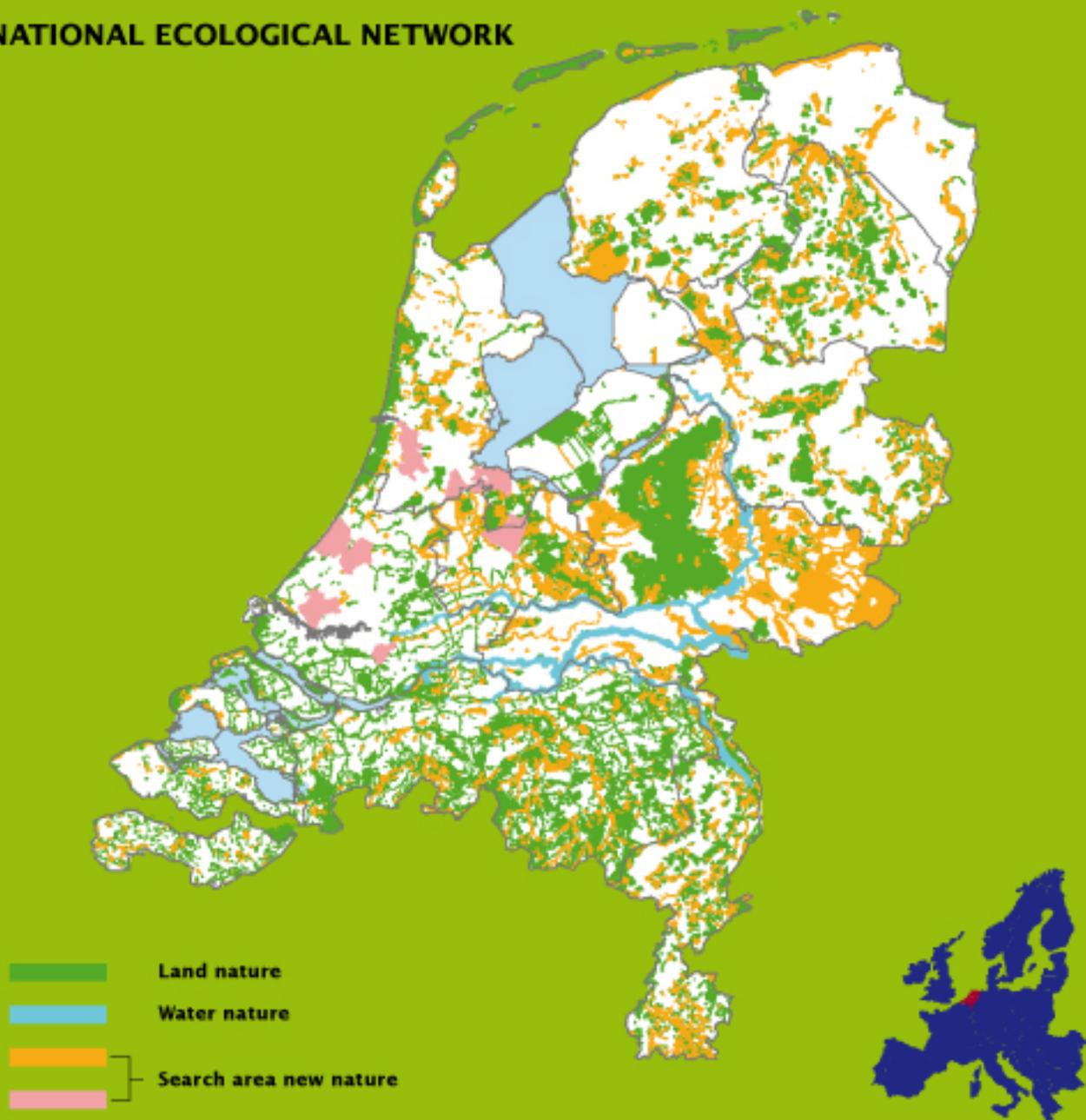
Management

The executive committee of the municipality of Tilburg consists of the mayor, 6 aldermen and the city manager. At this executive level the responsible alderman for biodiversity holds the portfolio Environment and Urban Green. However, biodiversity is closely linked to city planning policy. That is why the holder of the portfolio Extra-urban Planning Policy also plays an important role.

At departmental level the departments Spatial Planning and Environment are the most directly involved with the theme biodiversity. The municipality has one ecologist on the payroll. Biodiversity policy is currently being formed in Tilburg. In addition, the upkeep and development of a sustainable green city is part of the existing green and environmental policy.

Tilburg is also a participant in several collaborative platforms in the field of biodiversity. Together with the Province of Noord-Brabant, ECNC (European Centre for Nature Conservation), a number of universities and other organizations, the Brabant-European Partnership for Sustainability was set up in 1998. Inside the municipal boundaries Tilburg participates in the Foundation Sustainable Tilburg, a collaboration in which different organizations in the field of sustainable environmental activities come together. Outside the municipal boundaries Tilburg co-operates with other municipalities and organizations in 'De Duurzame Driehoek' (The Sustainable Triangle) and 'Het Groene Woud' (The Green Forest).

NATIONAL ECOLOGICAL NETWORK



The Netherlands and biodiversity

Anyone flying into the country's main international airport Schiphol could be forgiven for thinking that the Netherlands is totally built over. As far as the eye can see there are houses, industrial estates and greenhouses, and a dense network of roads. In between are some long, narrow fields and, if you know where to look, some tiny nature reserves. With 16 million people living on 34,000 km², it's no wonder that empty areas are few and far between. To provide all these people with a high standard of living, choices have to be made. So, for almost every square metre of the country there has been deliberation about the best land use option: housing, industry, agriculture, water, nature conservation, or a combination of one or more of these.

The decision is almost invariably based on economics, with loss of biodiversity and climate change brought about by the building of infrastructure, housing and by water and soil pollution being incidental considerations. It's not just species numbers and gene pools that are diminishing; the complex relationships in ecosystems are coming under increasing pressure or are disappearing.

The aim for the statutory environmental impact assessment in the Netherlands is to incorporate biodiversity more integrally than has so far been the case.

Because of its unique position as a delta, the Netherlands includes a large number of wet ecosystems, each with a characteristic variation in biodiversity. The government is attempting to protect the existing wetlands against negative influences from outside, and is simultaneously trying to improve wetland quality. Whereas water management used to aim at regulating and protecting against floods, the Dutch are now experimenting with more natural systems that offer more scope for biodiversity.

The Netherlands is making efforts for the protection and sustainable use of agrobiodiversity. The biodiversity value of many agricultural landscapes in the Netherlands is coming under increasing pressure, which is why the Netherlands is working hard to restore genetic variety in breeds and varieties, biological and landscape elements related to farming practice, and production-supporting biological organisms and processes.

PROVINCIAL ECOLOGICAL NETWORK



Province Noord Brabant and biodiversity

In terms of area, Noord-Brabant is the second largest province in the Netherlands. It has 2,4 million inhabitants who provide nearly 15% of the national prosperity. Noord Brabant is the seventh largest region in economic terms and the third most innovative in Europe. Brabant is also a crossroad. A substantial part of the transportation from the Randstad conurbation and Rotterdam to Germany and Belgium travels via Brabant's roads, rail network and canals. About 60% of the employment is also found there. The province and the five major municipalities of Breda, Tilburg, Eindhoven, Helmond and 's Hertogenbosch have joined forces in BrabantStad. The rural area comprises 16.000 agricultural enterprises covering 320.000 ha of farmland (62% of the province). Areas of outstanding wildlife and scenic value: De Groote Peel, De Biesbosch, De Loonse en Drunense Duinen and the Groene Woud are national landscapes.

Noord-Brabant is a region in the Netherlands, which has a high population density in combination with intense levels of economic activity. Together, this puts enormous strains on biodiversity, which is seen as an underlying factor in determining the quality of home and working life, a favourable business climate, the health of individuals and an attractive environment for tourists and visitors.

In order to work out an effective policy and pragmatic programme on biodiversity we want to learn from methodologies applied in different regions in Europe. In our programme we want to:

- Build a network of regions in Europe and together raise European Funding for projects
- Make biodiversity visible and understandable for common people
- Initiate, develop and implement a pragmatic programme in order to stop the loss of Biodiversity in Brabant



Tilburg and biodiversity

The city of Tilburg is located on a high sandy area bordered by two small rivers. The geomorphic characteristics result in an abundant number (64) of biotopes, which is remarkable for such a small area. It can be seen from the biodiversity map that the biodiversity is greatest outside the built-up area. The greatest variety of species and biotopes, and with that the presence of the most (rare) species, is limited to the protected nature reserves. The intensive use of the agricultural areas means that the species that are found here are primarily species that are commonly found throughout the Netherlands. In the inner city, one finds limited numbers of species that are commonly found throughout the Netherlands. Special conditions such as old walls and higher average temperature also contribute to the biodiversity of the whole municipality, as can be seen from the presence of wall plants and neophytes.

Why bio-diversity

Biodiversity contributes to many aspects of the human well-being, for example

- providing raw materials and nature products for
 - energy supplies
 - food supplies
 - (clean) water supplies
 - (clean) air supplies
 - scientific research
- protection against natural disasters
- reinforcing nature perception (entertainment/recreation)
- and other ecosystem services, such as pollination, etc.

GREEN TEMPLATE



LEGEND

-  Urban Area
-  Military Airport
-  Water
-  Municipal Border

PROVINCIAL POLICY

-  Nature
-  Agriculture/ Landscape
-  Agriculture
-  Ecological connection zone

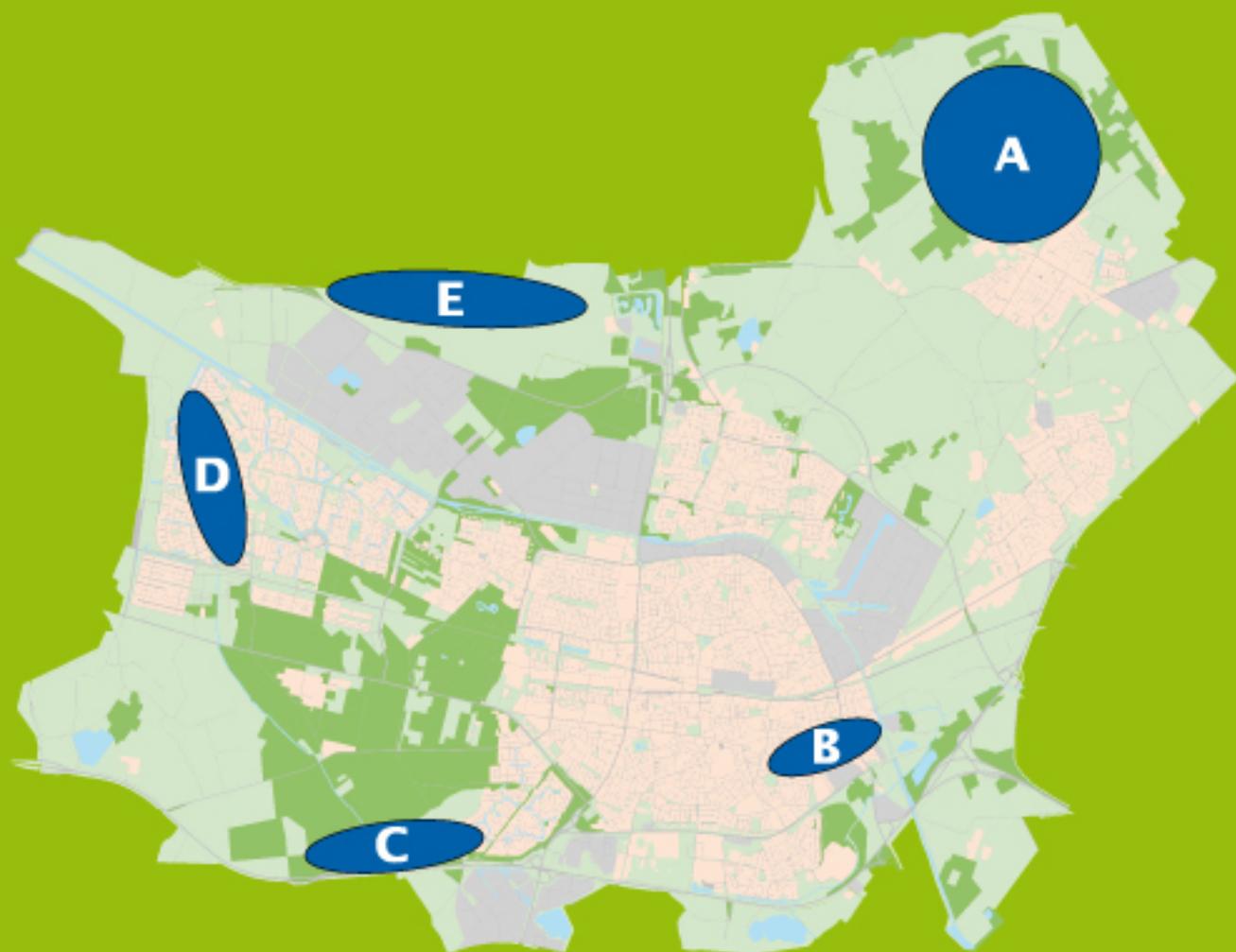
GREEN TEMPLATE

-   Ecological connection zone
-  Nature development
-  Landscape ecological zone

Green Template

The most important municipal policy paper in the context of facilitating and safeguarding biodiversity is the Green Template. This policy paper forms a planning framework for a robust ecological structure around Tilburg. The memo was written after an intensive consultative process with important parties in the outlying areas, namely agricultural and horticultural organizations, water boards, nature and environmental organizations, the Province of Noord-Brabant and the Municipalities of Oisterwijk and Tilburg. Various biodiversity projects are carried out within the framework of the Green Template policy. The accompanying Green Template shows the locations where green projects have been planned, where the city can expand and where agriculture can develop.

BIODIVERSITY MAP



Locations

A De Brand
B Piushaven
C De Kraaistoep
D Dongevallei
E Huis ter Heide

Biodiversity map

At this time the Green Template is the most important framework of biodiversity projects. These projects are aimed at the development of a robust sustainable ecological structure around Tilburg. Five large-scale projects in and around the city of Tilburg that exhibit a high degree of biodiversity have almost been completed.

The five areas are: the old and rare landscape type of 'De Brand' (A), the 'Piushaven' with its abundance of urban flora (B), the combined water collection and nature development area 'de Kaaistoep' (C), the 'Dongevallei', an ecological connecting zone in a residential neighbourhood (D) and 'Huis ter Heide', where new nature development is taking place (E).

Several other nature development projects are currently in progress.



A: De Brand

In De Brand one can find the rare landscape type 'Boshoevelandschap' (woodland/farmland). This landscape is the result of reclamation in the late Middle Ages. Similar landscapes elsewhere have been destroyed by new reclamation and/or reparcellation. The poor drainage of De Brand and the resulting difficulties in using the land have led to De Brand being spared from intensification and large-scale agriculture. In the current landscape, the original cultivation and agricultural development are still easily recognizable. That means that from a cultural historical point of view this is (also) a unique area that should be conserved.

The small scale of the landscape type and the great variety of environmental conditions (caused in particular by the transition from dry, wind-borne sand deposits to wet brooks and creeks) make the area home to rare amphibians like the Tree Frog, the Great Crested Newt and the Moor Frog. The presence of Great Crested Newts led to the area being designated as a Natura-2000 area. An overview of the variety of species found in De Brand is given below.

Variety of species De Brand (source: De Brand. Historie en ontwikkeling van een bijzonder Brabants landschap. Ecologische kring Midden-Brabant & Brabants Landschap, 2004):

Order	Number of species	Rare species	Examples
Toadstools	±500	±60 (Dutch Red List)	Helvella leucomelaena, Boletus parasiticus
Flora	±500	±20 (Dutch Red List)	Equisetum sylvaticum, Ranunculus auricomus
Butterflies	33	±5 (Dutch Red List)	Apatura iris, Limenitis camilla
Amphibians and reptiles	10	5 (Dutch Red List)	Hyla arborea, Triturus cristatus
Summer birds	73	6 (Dutch Red List)	Pernis apivorus, Dendrocopos minor



B: Piushaven

The Piushaven is the largest city harbour in Brabant and dates from 1923. At the time when the harbour was in use it was very busy and the lay-out and management was devoted entirely to shipping. By now many harbour activities have been moved to other, more accessible harbours in Tilburg. Limited use and overdue maintenance and management led to quiet, caved-in sheet-piling and the growth of vegetation along the banks and wildshoots of shrubs and trees; in other words an extremely varied area for mankind and nature.

The great powers of attraction that the Piushaven has for plant and animal life is largely due to the connection with the outlying areas via the Wilhelmina Canal. Plants and animals, in particular birds and fishes, follow the water courses and reach the inner city via the canal. In addition, the harbour area is home to a wide variety of flora including many wall plants and neophytes.

Variety of species Piushaven (source: Natuurwaarden van het Piushavengebied. Ecologica, 2003):

Order	Number of species	Rare species	Examples
Flora	±200	±20	Asplenium scolopendrium, A. trichomanes
Butterflies	16	0	
Dragonflies	15	3	Platycnemis pennipes, Calopteryx splendens
Fishes	11	3	Scardinius erythrophthalmus, Cottus Gobio
Birds	30	5	Alcedo atthis, Motacilla cinerea
Mammals	9	0	



C: De Kaaistoep

De Kaaistoep is an area in which water collection is combined with nature development and nature management. Groundwater collection has been taking place in De Kaaistoep since the 19th century, at first for industrial purposes and later also for drinking water. To protect the quality of the groundwater against seeping pollution the water collection company bought up the parcels of land in the 20th century. In 1994 it was decided to start a nature development project on the site in order to provide even better protection for the groundwater and to meet the increasing demand for nature conservation areas.

Depletion of the grasslands, the construction of pools and the continued presence of windbreaks and thickets have led to a small-scale, varied landscape. Because the area has been monitored annually since the beginning of the nature development project, a great deal is known about the variety of species in the area. It can justifiably be said that the nature development project has been a huge stimulus for the biodiversity in De Kaaistoep.

Variety of species the Kaaistoep (bron: De Kaaistoep. 5 Jaar natuurontwikkeling en natuurstudie in een waterwingebied. KNNV, 2000; Natuurstudie in De Kaaistoep, KNNV, 2005):

Order	Number of species	Rare species	Examples
Toadstools	±300	±23 (Dutch Red List)	Hygrocybe conica, Ascobolus albidus
Lichens	±35		
Mosses	±125	±20	Anthoceros punctatus, Phaeoceros carolinianus
Flora	±350	±15 (Dutch Red List)	Illecebrum verticillatum, Luronium natans
Butterflies	20		
Dragonflies	30	5	Sympecma fusca, Leucorrhinia dubia
Birds	117		
Mammals	26		



D: Dongevallei

The Dongevallei comprises a nature development project in which an ecological connecting zone has been constructed through a residential neighbourhood. Until the beginning of the 20th century the little Donge river formed a natural connection between a number of areas with a great biodiversity. During continued development of the area the Donge river was canalized and lost its natural character and to a great extent its connecting function as well.

Around 1990 a plan was formed to build a residential area called De Reeshof around the Donge. During the planning stage the idea arose to combine the building of the neighbourhood with a major boost for the natural character of the Donge. Between 1995 and 2000 the Donge was restored and turned into a running brook with an auxiliary channel, pools, marshes, arid grassland, rough herbage and marshy woods. The zone is used by a large number of plants and animals, right in the middle of a residential area.

Variety of species Dongevallei (source: Inventarisaties Joost Cools, 2002; IVN, 2004):

Order	Number of species	Rare species	Examples
Flora	±243	±16 (Dutch Red List)	Hypericum elodes, Lycopodium inundatum
Butterflies	21		
Dragonflies	21		
Birds	45	6 (Dutch Red List)	



E: Huis ter Heide

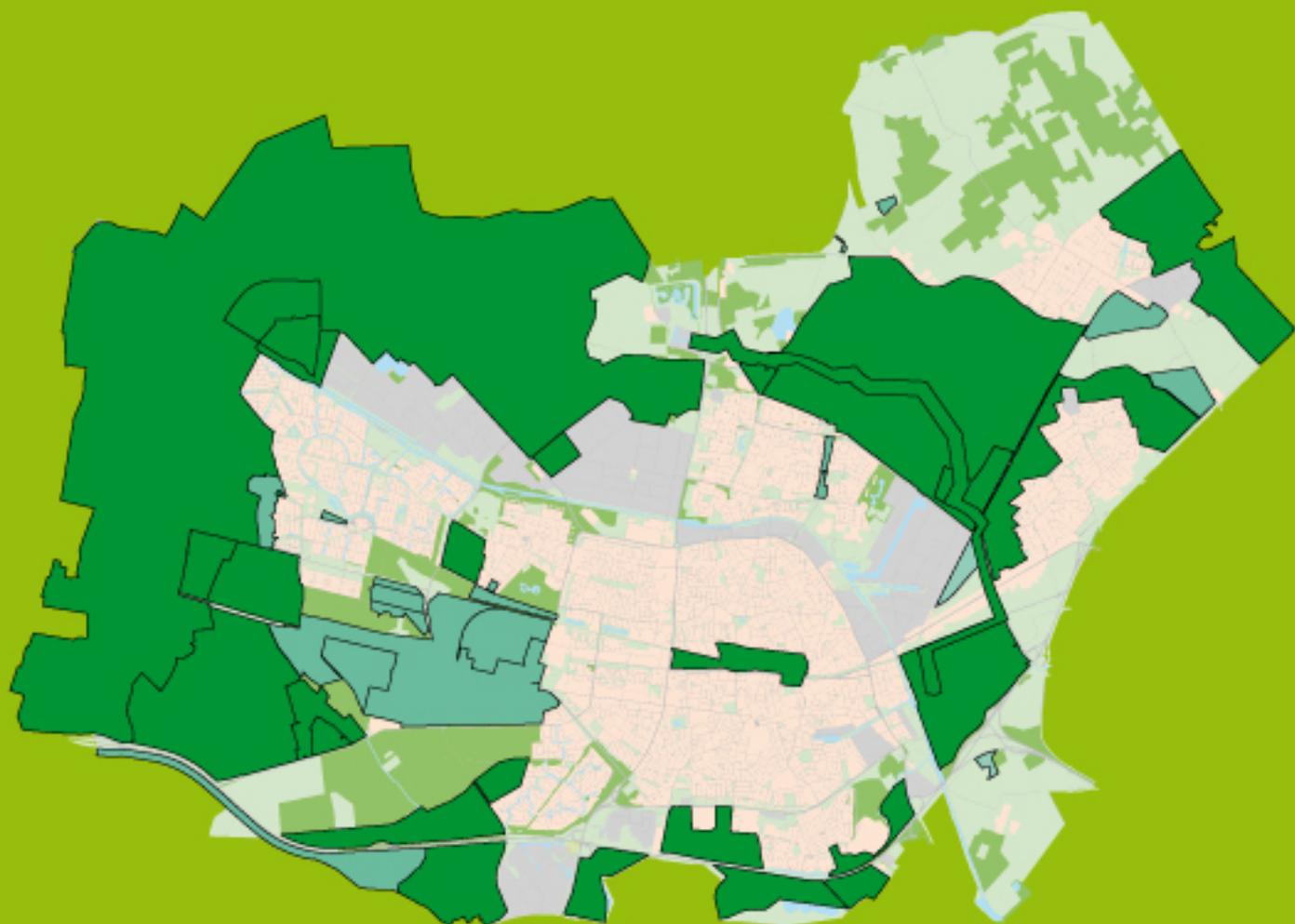
Around 1900 the Huis ter Heide area was still mainly made up of heathland with a few small woods and fens, including the Leikeven, Plakkeven and Zwartven. At the beginning of the 20th century the heaths were developed and turned into agricultural land or planted with coniferous trees. Of the fens only the Plakkeven and parts of the Leikeven remained. The characteristic flora and vegetation in these remaining fens declined drastically, particularly during period from 1970 to 1990, due to increasing acidification and over-fertilization.

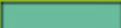
To be able to restore the original values the Lobelia Plan was put into action in 1993. The plan is named after the characteristic fen plant the Water Lobelia. The plan is based on restoration of the original fens, surrounded by a landscape that will consist mainly of heaths, arid heath/grassland with occasional thickets and woods. At this time part of the plan has already been carried out and the (Old) Leikeven has been largely returned to its original size and shape. The original fen flora, have returned or have increased in number in the Old and New Leikeven.

Variety of species Huis ter Heide (source: Inventarisaties Joost Cools, 2002):

Order	Number of species	Rare species	Examples
Flora	77	29 (Dutch Red List)	Pinguicula vulgaris, Luronium natans
Butterflies	24		
Dragonflies	27		
Amphibians and reptiles	12	5 (Dutch Red List)	Bufo calamita, Triturus cristatus
Mammals	19		
Summer birds	155	29 (Dutch Red List)	Porzana porzana, Crex crex

BIODIVERSITY RESEARCH



 Quickscan

 Full research

Biodiversity Management

In 2005 Tilburg was the first city to sign the Countdown 2010 declaration. This has put biodiversity on the political agenda both locally and regionally. Research has been done into the biodiversity in and around Tilburg in the context of other projects and commitments. An Ecological Map of Tilburg is currently in progress. This map will provide information about nature within the municipal boundaries for both civil servants and citizens, so that knowledge of biodiversity will become more accessible and will be able to be used for decision-making and the physical arrangement of the city and its environs.

Together with the province of Noord Brabant we joint forces that resulted in a active biodiversity network consisting of municipalities, water boards, agricultural organisations, NGO´s and businesses, all of which have signed the Countdown 2010. The strategy of the network is to have as many organisations signing up and committing themselves to the biodiversity issue. Different task groups work on a divers number of themes such as common indicators, developing a monitoring system, a biodiversity programme, PR activities, lobbying and financing.

We realize that halting the loss of biodiversity in 2010 will be a great and difficult challenge, but we believe that with a shared effort we can make it work.



Colofon

© *gemeente Tilburg*

Editor, design and artwork:
gemeente Tilburg

Photography: Mischa Cillessen,
Beeldveld/Wilfried Scholtes, Joost Cools,
Karel-Henk Grootjans

Contact: Mischa Cillessen, ecologist
E-mail: mischa.cillessen@tilburg.nl
www.tilburg.nl/groen



TILBURG

